Guide to the 'Other' Directory in 'The Best CTD/Hydrographic Data' Collection

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In this document, tasks not yet completed are highlighted in grey.

This is a guide to the 'Other' files in 'The Best CTD/Hydrographic Data' area of the Java OceanAtlas Suite site (https://joa.ucsd.edu/Data_homepage). We ialso nclude information about a few other present and future data collections which are (or will be) found in other areas of "'The Best' CTD/Hydrographic Data" collection. Because we are always adding new files, this document may be slightly out of date; the intent is to update this list as needed.

All "cleaned" data were downloaded from the CCHDO (https://cchdo.ucsd.edu) and then subjected to these procedures: (1) Bottle data columns and headers were rectified to a specified set and order. (2) Duplicate bottles and bottles with little or no data from oxygen titrations or nutrient analyses were discarded. (3) Data which were quality coded bad or uncertain were eliminated. (4) Where there were multiple casts at a single station (or a single location with multiple stations), the ones which comprised the most nearly complete profile were combined into a single vertical profile. (5) Transects were sorted with south-to-north or west-to-east left-right orientation. (6) Where it took several cruises to cover one very long transect, the data were combined. (7) Overlapping or off-transect data were eliminated. No measured data values were changed. In a few cases errors in station metadata such as position or depth to bottom were corrected.

See the top of page https://joa.ucsd.edu/othervertical for a master map showing locations of some of the stations in the data files.

Files with suffix "_hy1.csv" are in Exchange format (see https://cchdo.ucsd.edu/formats), which can be read by several data exploration applications(e.g., ODV) and any application which can read ascii .csv files. Files with ".joa" suffix are in Java OceanAtlas binary format, which can be read only by that application. [NOTE: Java OceanAtlas can be used to export an Exchange format (_hy1.csv) file from any file it can open.]

"WOA" in a file name indicates a data set made from WOA files to as closely as feasible match the track of the WOCE line in question. We will make most of these later.

At this time the focus is on the bottle data files. Only a few cruises now have CTD data on line here. In the fullness of time, we intend that there should be cleaned bottle and cleaned CTD files, each in ascii/Exchange and JOA binary formats.

24°N Global Section

To provide an approximately contemporaneous view of the North Pacific and North Atlantic Oceans at ≈24°N, we combined the P03 and A05 cruises from years as close together as feasible.

2004to2006
Files used: P03_2005_2006_all_bot_clean2.joa and A05_2004_bot_clean2.joa

24N_global_P03_A05_2004to2006_bot_clean.joa
24N_global_P03_A05_2004to2006_bot_clean_hy1.csv

30°S Global Section

To provide an approximately contemporaneous view of the South Atlantic, South Indian, and South Pacific Oceans at ≈30°S, we combined the A10, I09, and P06 cruises from years as close together as feasible.

2002_2003
Files used: A10_2003_bot_clean.joa, I05_2002_bot_clean.joa, and P06_2003_bot_clean.joa

30S_global_A10_I05_P06_2002_2003_bot_clean.joa
30S_global_A10_I05_P06_2002_2003_bot_clean_hy1.csv

2009to2011
Files used: A10_2009_bot_clean.joa, I05_2009_bot_clean.joa, and P06_2009_2010_bot_clean.joa

30S_global_A10_I05_P06_2009to2011_bot_clean.joa
30S_global_A10_I05_P06_2009to2011_bot_clean_hy1.csv

Ocean Grand Tour [a valuable data collection for demonstrations and education]

We prepared a collection of oceanographic bottle and CTD data files from multiple cruises which, when assembled, create a high-quality full-depth transect of the oceans from the northwestern Ross Sea Antarctic continent north through the Pacific Ocean and Bering Strait, across the Arctic Ocean over the North Pole and through the Nordic Seas, south through the Atlantic Ocean, and ending at the Antarctic continent in the Weddell Sea. The assembled data are called the "Ocean Grand Tour". This a valuable data collection for demonstrations and education because it illustrates the principal water masses of both the Atlantic and Pacific Oceans in a single data file.

Earlier versions of the Ocean Grand Tour had their dissolved oxygen and nutrient data in volume units. "Ocean Grand Tour 2" in mass units, new in 2022, has dissolved oxygen and nutrient data in mass units, but otherwise is identical in stations and content to the original "Ocean Grand Tour 2" from 2009.

Extensive documentation is included.

Data:
Ocean_Grand_Tour_2_bottle_mass_hy1.csv
Ocean_Grand_Tour_2_bottle_mass.joa
Ocean_Grand_Tour_2_CTD_volume.joa

Documentation:
Grand_Tour_2_Mass_Documentation.pdf
Ocean Grand Tour 2 volume small.pdf [illustrations/discussion of the section]
Important note about Ocean Grand Tour 2 volume data.pdf
GrandTour2_file_list.doc

Bermuda Atlantic Time Series

The Bermuda Atlantic Time Series (BATS) is a long-standing program of approximately monthly CTD/hydrographic cruises providing a time series view of the waters from sites near Bermuda. The CCHDO has CTD data from these cruises extending from late 1988 through 2016, but at this time does not have bottle data files. At some point, it is intended to examine the multiple CTD casts from each BATS cruise at the CCHDO and assemble a representative cast from each cruise (usually the deepest cast at the selected BATS location) into a time series. No BATS data, however, are yet present in this collection. The BATS data, when present, will be in the "Atlantic" area of the "'The Best' CTD/Hydrographic Data.

Hawaii Ocean Timeseries (HOT)

The Hawaii Ocean Timeseries (HOT) is a long-standing program of approximately monthly CTD/hydrographic cruises providing a time series view of the waters from a deep-sea site northwest of the island of Oahu, Hawaii. The CCHDO has bottle and CTD data from most of these cruises extending from late 1988 through 2019. From each individual cruise we extracted the two or three coordinated casts whose bottle samples, when combined, provided the most nearly complete depiction of the routine hydrographic variables from the entire water column. We combined the data from the chosen bottle casts and eliminated overlaps and known bad values in order to present the best-feasible single profile of the routine hydrography from that cruise. We used the CTD profile from the deepest of those casts as the representative CTD profile from the cruise. The CTD and cleaned/assembled bottle profiles were then added sequentially into a concatenated time series. There remain some gaps in the time series. Some have to do with longer-than-monthly intervals between cruises. There are also some cruises which took place but for which we have not yet been able to obtain the data in the form/format we use. We will attempt to add those cruises later. These files are available in the "Pacific" area of the "'The Best' CTD/Hydrographic Data:

HOT_timeseries_1988_to_2019_bot_clean_27SEP2021.joa
HOT_timeseries_1988_to_2019_bot_clean_27SEP2021_hy1.csv
HOT_1988to2019_CTD_timeseries.joa
HOT_1988to2019_CTD_timeseries_ct1.zip

Trace Metal Section Collection

We have pulled together a few sections of trace metal data (chiefly iron and aluminum) taken from water samples during repeat hydrography cruises. Trace metal casts on those cruises were separate casts, usually to about 1000 meters, carried out with separate equipment (CTD, rosette, bottles, winch, cable) from that used for the principal CTD/rosette casts. Trace metal data are accompanied by CTD data at bottle trips from instrument used for the trace metal casts, and usually nutrient data from the trace metal rosette bottles. These casts always took place immediately before or after the principal CTD/rosette cast, and so while the water samples are from different times, they can be examined together. The cleaned data from the principal CTD/rosette casts can be found in the appropriate ocean areas of "The Best CTD/Hydrographic Data" on the JOA Suite data site. Not yet completed.

Helium/Tritium Section Collection

Helium/tritium water sampling took place on some repeat hydrography cruises, especially during the original WOCE One-Time Survey in the 1990s. Helium/tritium water sampling took place during the principal CTD/rosette casts, usually from the same bottles used for water samples for the routine hydrographic parameters and CFCs. (On some cruises ocean carbon parameters were sampled from different bottles - often at different levels - than He/Tr.) We have extracted the subset of the water sample data from the cruises in other areas of our data collections containing only the bottles with the helium and/or tritium data, along with all the routine hydrographic, CFC/SF6, and, if available, ocean carbon data from those bottles. The complete cleaned data from the principal CTD/rosette casts can be found in the appropriate ocean areas of "The Best CTD/Hydrographic Data" on the JOA Suite data site. We are indebted to Bill Jenkins (WHOI) for compiling information and data from the cruises with helium data. We have not yet completed this data collection.